



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/561,095

12/16/2005

Brian A. Hunter

hunt01.034

2465

25247 7590 03/17/2008

GORDON E NELSON  
PATENT ATTORNEY, PC  
57 CENTRAL ST  
PO BOX 782  
ROWLEY, MA 01969

EXAMINER

CABRERA, ZOILA E

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,095	<b>Applicant(s)</b> HUNTER ET AL.	
	<b>Examiner</b> Zoila E. Cabrera	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-5, 6-26, 28-33 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/16/05</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6-10, 13-26 rejected under 35 U.S.C. 102(e) as being anticipated by Benhardt (US 2003/0055765 A1).

Benhardt discloses,

1. A method of analyzing a set of assets selected from a plurality of thereof, historic returns data for the assets of the plurality being stored in storage accessible to a processor ([0007];[0008])and the method comprising the steps performed in the processor of: receiving inputs indicating assets selected for the set and for each asset, a desired minimum return ([00229]; [0087]); using the historic returns data to determine a probability that at least one of the selected assets will not provide the desired minimum return indicated for the asset; and outputting the probability ([0029]-[0033]).

4. A method of optimizing a set of assets, historic returns data for the assets being stored in storage accessible to a processor and the method comprising the steps performed in the processor of: receiving inputs indicating a set of scenarios for the set

Art Unit: 2123

of assets, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario ([0029]-[0033]; [0144]-[0145]); and determining weights of the assets in the set such that the worst-case value of the set of assets is optimized over the set of scenarios ([0144]-[0146]).

6. The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may correspond to the historical returns data for the assets in the set of assets ([0144]-[0145]).

7. The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may include certain assets in the set of assets which are highly correlated ([0144]).

8. The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may correspond to outliers in the historical returns data ([0119]; [0144]).

9. The method of optimizing set forth in claim 4 further comprising the step of: receiving inputs indicating additional constraints to which the set of assets being optimized is subject; and in the step of determining weights of the assets, determining the weights subject to the additional constraints ([0030];[0023]).

As for claim 10, the same citations applied to claims 1 and 4 above apply as well for this claim.

13. The method set forth in claim 10 wherein: optimizing the weights of the assets is done using robust optimization ([0017]-[0025]).

14. The method set forth in claim 13 wherein: the robust optimization optimizes over a set of user-specified scenarios, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario ([0144]-[0146]).

15. The method set forth in claim 10 wherein: optimizing the weights of the assets is done subject to a constraint that the probability that the set of assets yields a desired minimum return is greater than a user-specified value  $\alpha$  ([0029]-[0030]).

16. The method set forth in claim 15 wherein: the optimization is done subject to a plurality of constraints (1..n), a constraint  $c_i$  specifying that the probability that the set of assets yields a desired minimum return that is greater than a user-specified value  $\alpha_i$  ([0029]-[0030]).

17. The method set forth in claim #C5 wherein: optimizing the weights of the assets in the set is done using robust optimization ([0017]-[0025]).

18. The method set forth in claim 17 wherein: the robust optimization optimizes over a set of user-specified scenarios, each scenario including a mean return and a covariance matrix, each of which varies stochastically between two extremes, and a probability of occurrence for the scenario ([0078]-[0079];[0032]).

19. The method set forth in claim 10 wherein: the asset may have a negative weight ([0033]).

20. The method set forth in claim 10 wherein; the sum of the weights of the assets in the set may exceed 1 ([0033]).

21. The method set forth in claim 10 wherein: optimizing the weight of the assets is done subject to one or more additional constraints ([0039]-[0042]; [0052]-[0061]).

22. The method set forth in claim 21 wherein: the additional constraint restricts the sum of the weights of the assets belonging to a selected subset of the assets in the set ([0039]-[0042]; [0052]-[0061]).

23. The method set forth in claim 21 wherein: the additional constraint constrains the weight of an asset such that the amount of the asset in the set is above a minimum investment threshold ([0029]-[0030]).

24. The method set forth in claim 21 wherein: the additional constraint limits constrains the set's downside risk to be less than a predetermined value b ([0029]-[0030])

25. The method set forth in claim 24 wherein; the additional constraint is computed from the worst draw-down for each asset ([0034]; [0038]).

26. The method set forth in claim 24 wherein: the additional constraint is computed from the set's average return and standard deviation ([0031]).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 11, 12, 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benhardt (US 2003/0055765 A1) in view of Columbus et al. (US 2002/0022988 A1).

As for claims 5, 11, 12 and 28-33, Benhardt discloses the limitations of claims 1, 4 and 10 above and further discloses quantifying the risk of an asset ([00145], i.e., risk control). However, Benhardt fails to disclose the limitations of claims 5, 11, 12 and 28-32. However, Columbus teaches that the value of the set of assets is a real option value and that the objective function is adjusted by assigning a premium or a discount to the real value of the assets ([0007]). Columbus further teaches an objective function to take tax sensitivity of an asset (Fig. 5c). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of Benhardt with the method of Columbus because it would provide an improved system for evaluating performance based on returns observed after a particular revision, historical consistency and/or the number of revisions made by the analyst or inventing entity ([0016]).

### ***Allowable Subject Matter***

3. Claims 2-3 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zoila E. Cabrera whose telephone number is 571-272-



Art Unit: 2123

3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zoila Cabrera  
Primary Examiner  
3/17/2008

/Zoila E. Cabrera/

Primary Examiner, Art Unit 2123